Amendments to the Claims

Claims 1-47 cancelled

48. (Previously Presented) A spectroscopic system for imaging biological tissue comprising:

multiple input ports arranged to introduce light at input locations into biological tissue and multiple detection ports arranged to collect light from detection locations of the biological tissue,

at least one light source, operatively connected to a radiation pattern controller, constructed to generate light of an excitation wavelength, said light source being optically coupled to at least one of said input ports;

at least one detector, operatively connected to said radiation pattern controller, constructed and arranged to detect fluorescent light emitted from a fluorescent tissue constituent, wherein said fluorescent light has migrated in the tissue region to at least one detection location corresponding to at least one of said detection ports; and

a processor operatively connected to receive detector signals from said detector and provide an image.

49. (Previously Presented) The spectroscopic system of claim 48 wherein said radiation pattern controller is constructed to control intensity of said introduced light.

50. (Previously Presented) The spectroscopic system of claim 48 wherein said radiation pattern controller is constructed to control phase of said introduced light.

51. (Previously Presented) The spectroscopic system of claim 48 wherein said radiation pattern controller is cooperatively constructed and arranged with said light source to generate said light modulated at a frequency on the order of 10^8 Hz.

52. (Previously Presented) The spectroscopic system of claim 50 including an amplitude detector for detecting amplitude of said fluorescent light.

53. (Previously Presented) The spectroscopic system of claim 48, wherein said excitation wavelength is selected to be absorbed by an endogenous pigment in the examined tissue emitting said fluorescent light.

54. (Previously Presented) The spectroscopic system of claim 48, wherein said excitation wavelength is selected to be absorbed by an exogenous pigment emitting said fluorescent light.

55. (Previously Presented) The spectroscopic system of claim 48 further including an interference filter, said filter being arranged to pass to said detector mainly said fluorescent light excited in the examined tissue.

56. (Previously Presented) The spectroscopic system of claim 48, wherein said light source includes a laser diode.

57. (Previously Presented) The spectroscopic system of claim 48, wherein said light source includes a light emitting diode (LED).

58. (Previously Presented) The spectroscopic system of claim 48, wherein said detector includes a diode detector.

59. (Previously Presented) The spectroscopic system of claim 48, wherein said detector includes a photomultiplier.

60. (Previously Presented) A method of spectroscopic examination and imaging of biological tissue, comprising:

providing a radiation pattern controller coupled to a light source, and a detector,

introducing into the biological tissue electromagnetic non-ionizing radiation of an excitation wavelength, said radiation having a known time-varying pattern of photon

density,

detecting over time fluorescent radiation emitted from a fluorescent constituent located in the tissue,

processing signals of said detected fluorescent radiation in relation to said introduced radiation to create processed data indicative of location of said fluorescent constituent, including determining location of said fluorescent constituent of the subject by correlating said fluorescent radiation with irradiation and detection locations, and

providing an image.

61. (Previously Presented) The spectroscopic method of claim 60, including introducing said excitation wavelength being selected to be absorbed by an endogenous pigment in the examined tissue comprising said fluorescent constituent emitting said fluorescent radiation.

62. (Previously Presented) The spectroscopic method of claim 60, including introducing an exogenous pigment into the tissue, said exogenous pigment comprising said fluorescent constituent emitting said fluorescent radiation.

63. (Previously Presented) The spectroscopic method of claim 60 including controlling intensity of said introduced radiation utilizing said radiation pattern controller.

64. (Previously Presented) The spectroscopic method of claim 60 including controlling a phase of said introduced radiation utilizing said radiation pattern controller.

65. (Previously Presented) The spectroscopic method of claim 60, wherein said radiation pattern controller said radiation pattern controller is cooperatively constructed and arranged with said light source to generate said introduced radiation being modulated at a frequency on the order of 10^8 Hz.

66. (Previously Presented) The spectroscopic method of claim 63, including detecting amplitude of said fluorescent radiation using an amplitude detector.

67. (Previously Presented) The spectroscopic method of claim 64, including detecting phase of said fluorescent radiation.